

APPENDIX I - TRAFFIC ANALYSIS

1. May 15, 2002 Memo from Susanne Rasmussen, Director of Environmental and Transportation Division, to Riverside Study Committee re: Transportation Impact Analysis

2. May 13, 2002 Memo from Barry Pell, Rizzo Associates, to Susanne Rasmussen, Director of Environmental and Transport Division, re: Riverside Transportation Analysis



CITY OF CAMBRIDGE
COMMUNITY DEVELOPMENT DEPARTMENT

BETH RUBENSTEIN
*Assistant City Manager for
Community Development*

SUSAN M. GLAZER
*Deputy Director for
Community Development*

Memorandum

To: Riverside Study Committee
From: Susanne Rasmussen, Director
Environmental and Transportation Planning Division
Date: May 15, 2002
Re: Transportation impact analysis -- **UPDATED VERSION**

Attached is a memo from Barry Pell of Rizzo Associates, summarizing the results of his transportation analysis for the Riverside study area. The memo is an update of the analysis provided in a memo to the Committee dated April 24, 2002 and includes all twelve intersections that were to be analyzed. The analysis of the additional intersections has not altered any of our conclusions regarding the traffic analysis.

As noted in the earlier memo, this analysis was based on 20-year projections for build out scenarios both under existing zoning and under proposed zoning developed by the Riverside Study Committee as of April 10, 2002. From these build out projections, estimates of expected traffic volumes were developed and assigned to the street network and their impact on intersection performance analyzed. While the analysis represents a reasonable projection of future impacts of development in Riverside, the results are best understood as providing a picture of the relative, rather than absolute, impacts associated with the two zoning scenarios¹.

Analysis of Daily and Peak Hour Trips

Key findings regarding project daily and peak hour trips:

- The projected number of **new daily traffic over a 20-year period is essentially the same for both the existing zoning and the Committee's proposed zoning**, roughly 2,600 trips.
- While daily trips are similar, **under the proposed zoning scenario more of the trips will occur during the peak hour**. Approximately

238 Broadway
Cambridge, MA 02139
Voice: 617 349-4600
Fax: 617 349-4669
TTY: 617 349-4621
www.ci.cambridge.ma.us

¹ The projections only include traffic generated as a result of development in Riverside. Traffic increases resulting from development elsewhere in Cambridge and outside Cambridge were not factored into this analysis.

10% more of the vehicle trips will occur during the peak hour under proposed zoning (411 new trips) compared to existing zoning (374 new trips).

Intersection Analysis

A total of 12 intersections within the Riverside study area have been analyzed. Critical movement analysis was used to estimate how the intersections would perform in the future. Critical movements have been estimated for the critical or PM peak hour. The definition of critical movement volume at an intersection is the sum of all conflicting traffic movements expressed in vehicles per hour (see attached graphic for an illustration of "conflicting movements"). Intersections with 1,500 or fewer vehicles per hour are considered to operate adequately, i.e. motorists will on average wait no more than two light cycles to get through the intersection. Once the threshold is exceeded, intersection operation starts to deteriorate.

Key findings regarding intersection operation:

- Of the twelve intersections analyzed, **the intersections of Memorial Drive/Western Ave., Memorial Drive/JFK St. and Soldier's Field Rd./River St. currently exceed the critical movement threshold.**
- **Only one additional intersection is projected to exceed the threshold in 20 years** as a result of the projected development under existing zoning. No additional intersections are projected to exceed the threshold in 20 years under the proposed zoning.
- **Intersection performance in 20 years will not significantly worsen under either zoning scenario compared to current conditions**, with only a maximum 5% difference in the number of critical movements at the most heavily impacted intersection (Western Ave and Memorial Drive).
- **There is little difference in intersection performance between the existing zoning in 20 years and the proposed zoning in 20 years.** Only four intersections vary by more than 1% and the intersection which differs the most between these scenarios (Putnam Ave and River Street) has 1.6% more critical movements under existing zoning than under the proposed zoning.

Memorandum

To: Susanne Rasmussen, Director
Environmental and Transportation Planning Division

Fr: Barry M. Pell, P.E.

Re: **Riverside Transportation Analysis**

Dt: May 13, 2002

As per your request, Rizzo Associates, Inc. has evaluated the issue of background (non-neighborhood) traffic growth as it affects the critical sum analysis. There are two alternative approaches to analyzing this growth. One alternative is to consider background growth as entirely outside the Riverside neighborhood (i.e., other Cambridge neighborhoods and other cities and towns). With this approach, future intersection volumes will increase by 10 percent (one-half percent annually for 20 years) *plus* traffic from remaining zoning in the Riverside neighborhood. In this alternative, intersection traffic growth will be greater than 10 percent.

The second alternative is to consider that the study intersections will grow in volume by 10 percent *total*, including whatever traffic is generated by future development from within the neighborhood. In this alternative, anticipated traffic growth at intersections will be exactly 10 percent.

Rizzo Associates, Inc. has applied the second alternative, since traffic volumes in Cambridge have historically increased at an annual average rate of one-half percent, from *all* development.

Based on this approach, Table 1 summarizes the critical sum analysis for the Riverside study intersections in Cambridge and allocates the 10 percent background growth between the components generated by the Riverside neighborhood (under proposed zoning) and outside the Riverside neighborhood.

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ASSOCIATES
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Table 1 Critical Sum Analysis

Intersection	Existing	Future ¹	% Background Growth	
			Development in Riverside	Other Growth
Memorial Drive/JFK	1,690	1,859	2.2%	7.8%
Memorial Drive/DeWolfe St.	1,010	1,111	3.3%	6.7%
Memorial Drive/Western Ave. *	1,654	1,819	6.7%	3.3%
Memorial Drive/River St. *	1,451	1,596	4.5%	5.5%
Sullivan Square	1,429	1,572	1.3%	8.7%
Putnam Ave./Western Ave.	1,224	1,346	1.5%	8.5%
Putnam Ave./River St.	1,190	1,309	1.8%	8.2%
Green St./River St./Western Ave.	990	1,089	0.4%	9.6%
Central Square	1,492	1,641	0.5%	9.5%
Massachusetts Ave./Pleasant St./ Inman St.	1,237	1,361	0.1%	9.9%

*With modified operation, presently under construction by the MDC

¹ With 10 percent growth (one-half percent for 20 years)

Please call me with any questions.

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